FINDING SHARED VALUE: IDENTIFYING PUBLIC-PRIVATE PARTNERSHIPS FOR THE HEALTH AND MINING SECTORS IN SOUTH AFRICA

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INTRODUCTION

In recent decades, there has been a significant increase in the utilization of public-private partnerships (PPPs) for development, with many developing countries and international donors engaging the private sector to create shared value, leverage resources and expertise, and achieve joint goals. From the perspective of the private sector, large-scale firms seek to shore up their value chains by investing in the communities in which they operate. Healthy and thriving local communities lead to stable workforces. From a public sector perspective, governments seek to engage private firms in order to fill the gap between social needs and the provision of government services. However, in general, the process for identifying opportunities for partnership remains unsystematic and immethodical.

Despite being one of the largest economies in Africa, South Africa continues to grapple with high rates of poverty; a high prevalence of communicable diseases such as HIV/AIDS and tuberculosis; and inadequate access to sanitation, education, and electricity, among other challenges. A major contributor to the South African economy is the mining sector, which accounted for roughly 8.6% of total Gross Domestic Product (GDP) in 2011 (Statistics South Africa). Typically, mining jobs pay low wages, are in remote locations, and thus attract employees who come from some of the most vulnerable segments of the population.

This project seeks to employ a systematic approach to PPP identification between the mining and health sectors to answer the question: where are the optimal locations for health infrastructure development jointly funded by the South African government and private mining companies? This project explores three fundamental factors: 1) health system coverage, 2) mining sector activity, and 3)vulnerability of the population. In short, this project identifies those locations with no hospital coverage, high vulnerability, and high levels of mining activity.

METHODOLOGY

Hospital Coverage

Health care coverage was assessed based on proximity to a hospital. Hospital data includes district and provincial government hospitals as well as private and military hospitals. A buffer zone of 25km was created to define the hospital coverage area.

Vulnerability

The 2011 South African Census was used to source various demographic data related to vulnerability. A *municipal vulnerability index* was created based municipal percentages of poverty, poor sanitation, and insufficient access to electricity, water and poor education. The index was rescaled so that it ranged from 0-100, with real municipal vulnerability values ranging from 19-61 in the data. (see note below for more on the vulnerability index).

Mining Sector Activity

Mining sector data was sourced from CSIR GAP and is represented at a sub-municipal, meso-scale. Each small zone contains economic data regarding activity within that zone. The mining sector contribution is measured by 2009 Gross Value Added (GVA) in millions of Rand per year. GVA is a measure of the value of all goods and services produced by the mining sector in the zone of interest.

Suitability Index

The Suitability Index identifies locations that are outside of the health coverage area that have, both, high levels of vulnerability and mining activity. First, any location within the hospital coverage zone of 25km was removed from data set. The vulnerability index was reclassified based on Jenks Natural Breaks, resulting in a vulnerability scale of 0-9. Similarly, the GVA was reclassified based on Jenks Natural Breaks, resulting in a GVA scale of 0-9. The reclassified vulnerability index and reclassified GVA scores were summed to produce a *Suitability Index* score ranging from 0-18. Real scores ranged from 2-15.

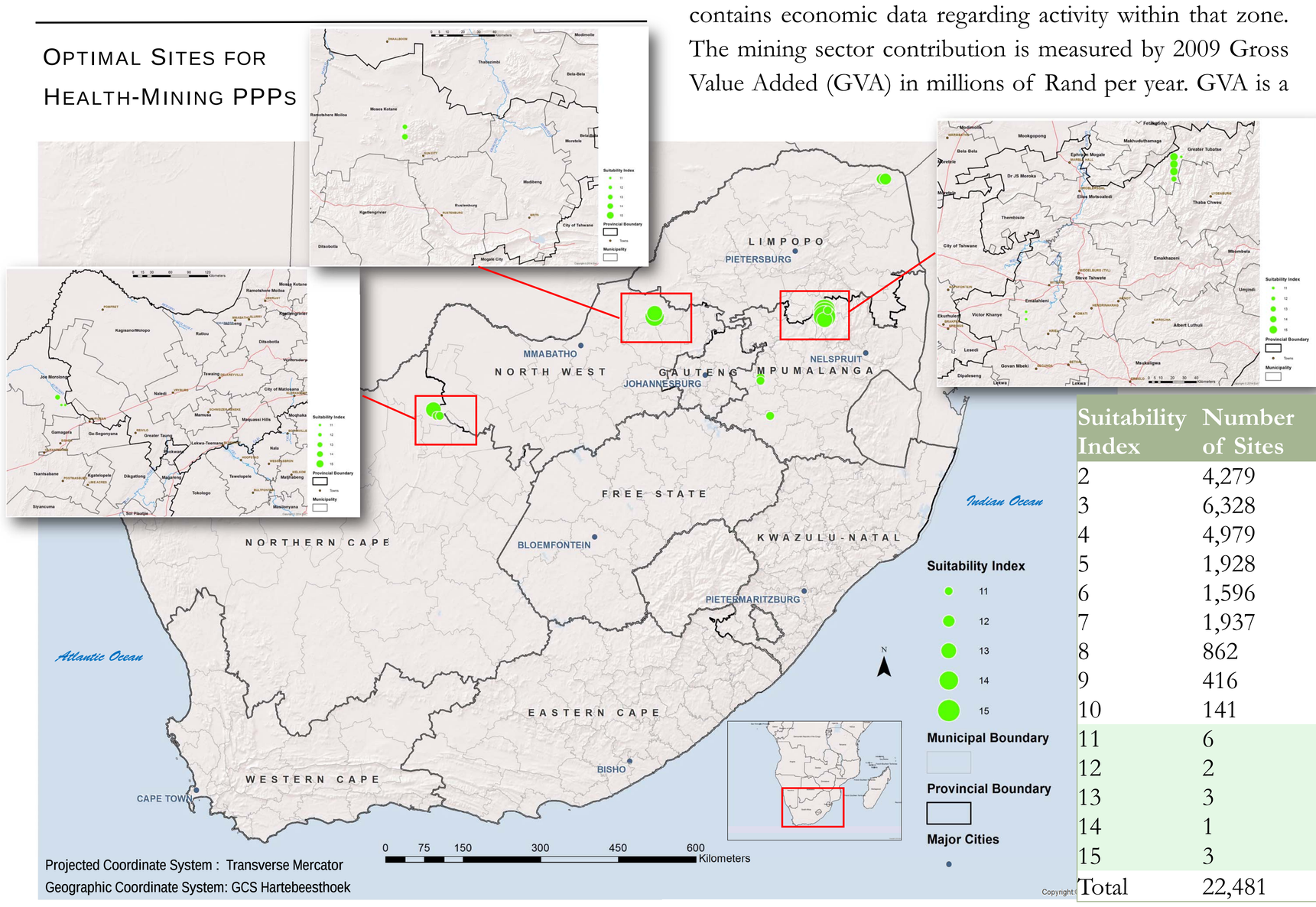
RESULTS

A total of 22,481 sites (economic zones) were identified as outside of the health coverage area . Of these sites, only 15 locations have suitability index scores of 11 or higher (indicating an ideal combination of high population vulnerability and high mining activity). These fifteen sites are in six municipalities, namely: Emalahleni, Greater Tubatse, Moses Kotane, Lekwa, Mutale, Joe Morolong. The combined population of these six municipalities is 1,270,758.

DISCUSSION

Public-private partnerships require the identification of opportunities for both the government and a private firm. The methods employed in this project allow for a systematic approach to identifying the overlap of government focus areas (vulnerability, health care coverage) and private firm areas of interest (improving health outcomes for its employees). The result is the identification of 15 distinct sites for PPP exploration within 6 municipalities. However, this analysis is not without limitation. Census data from 2011 and mining data from 2009 bring the current relevance of this analysis into question. Furthermore, the vulnerability index does not take into account prevalence of common diseases and is limited to the data in the 2011 census. Finally, the GVA mining data does not provide information regarding specific mining companies that operate near the suitable sites, requiring further research.

Optimal Sites for Health-Mining PPPs



Suitability Index	Number of Sites
2	4,279
3	6,328
4	4,979
5	1,928
6	1,596
7	1,937
8	862
9	416
10	141
11	6
12	2
13	3
14	1
15	3
Total	22,481

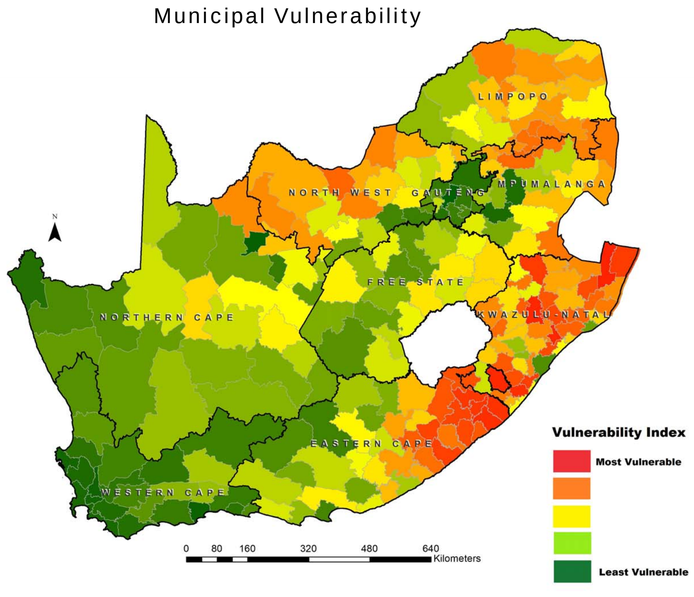
Data Sources: Demographic and SA Mapping data: Statistics South Africa, South Africa Census 2011; Hospital data: Health Systems Trust; Mining Data: CSIR Geospatial Analysis Platform; Shaded Relief:: ArcGIS Online.

Suitable Municipality	Population
Emalahleni	395,466
Greater Tubatse	335,676
Moses Kotane	242,554
Lekwa	115,662
Mutale	91,870
Joe Morolong	89,530
Total	**1,270,758**

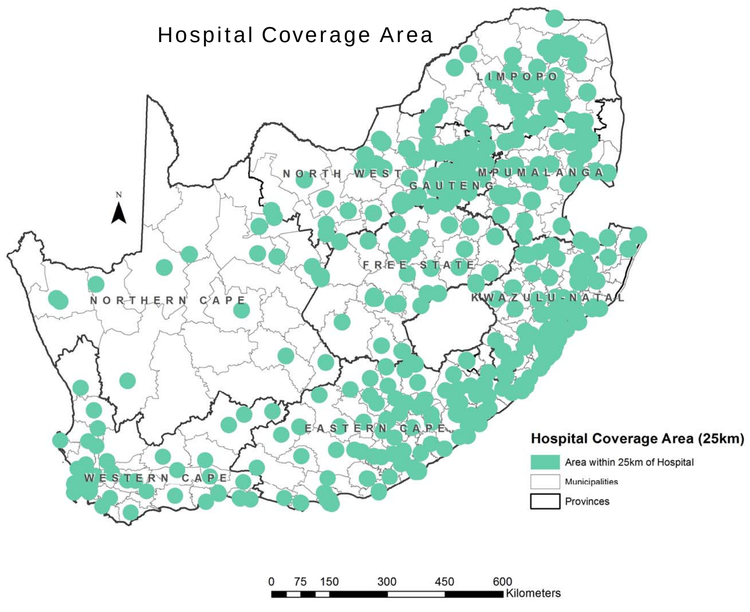
Note on Vulnerability Index Methodology:

Vulnerability Index = ([% of population with income less than 1600 Rand per month] + [% of pop. with pit latrines, buckets or no sanitation] + [% of pop. that use paraffin, candles or no energy as primary source] + [% of pop. who travel over 200m to nearest piped water, or none] + [% of pop. with only some primary school education]) x 20.

Municipal Vulnerability



Hospital Coverage Area



Mining Sector Activity